



4. With the tip of your scissors, poke a small hole in the center of the Styrofoam circle.
5. With the flat Styrofoam surface facing down, insert the straw into the hole so that it is flushed with the Styrofoam bottom. (You may need to increase the size of the hole by poking a pen or pencil through. However, make sure the hole is not too wide. There should be no space around the straw; it should fit snugly.)
6. Hold the square piece of paper against the flat Styrofoam circle.
7. Blow firmly into the straw.
8. Slowly release your hand from underneath the paper.
9. Explain why the paper did not fall once you removed your hand. As you blow through the straw, a jet of air moves horizontally from the hole at the bottom of the straw and spreads over the surface of the paper. As the air moves rapidly out of the bottom, it lowers the pressure between the paper and the Styrofoam circle. The higher pressure from the surrounding air pushes up against the bottom of the paper and "lifts" the paper. This demonstrates how the lift (pressure force) overcomes the weight (gravity) of the paper.

*A curve makes
air flowing above
a wing move faster,
and slower-moving
air below to push
harder and force
the wing upward.*

Quiz Your Guests

1. Discuss how the designs of the Flying Eagle Airplane wings resemble actual birds' wings. To be able to change the air pressure, a bird's wing is shaped like an airfoil, so the air moves faster across the top and slower under it. What do you think a side view of a bird's wing looks like? Remember to think about angles and thickness. (Look at the How an Airfoil Works diagram on the poster board.)
2. Point out that the size and shape of different birds' wings vary greatly. In addition to flight, birds use their wings for many different and specialized purposes. Consider a hawk, a duck, and a hummingbird: The shapes of their wings vary as greatly as the purposes they serve. Do you think insects and flying or gliding mammals have wing designs similar to birds'?

IN STEP WITH SCIENCE STANDARDS

STANDARD A: SCIENCE AS INQUIRY

- Understandings about scientific inquiry

STANDARD B: PHYSICAL SCIENCE

- Understanding of motion and forces

STANDARD C: LIFE SCIENCE

- Structure and function in living systems

